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LINKS: *Minority Research & Training*

Greater Social Resources Reduce Cognitive Decline Of Older African Americans and Whites

Socializing with family and friends, attending religious services, going to museums, and working are associated with less cognitive decline in African Americans and Whites over age 65, according to a study by Lisa Barnes, Ph.D., a cognitive neurophysiologist at the Rush Alzheimer's Disease Center, one of 29 Alzheimer's disease research centers across the country funded by the NIA.

"The implication of these results may be substantial, because it raises the possibility that if we become more socially active we can reduce cognitive decline in old age," said Barnes, who is an alumna of the National Institute on Aging's Summer Institute on Aging Research.

This is one of the first studies to look at the connection between social relationships and cognitive decline in a biracial sample. Past research has demonstrated an association between social relationships and reduced mortality, disability, and dementia, and almost all of the previous studies have been conducted with predominantly White populations.

Working with data from the Chicago Health and Aging Project, a population-based longitudinal study of aging and Alzheimer's disease (AD) led by principal investigator Denis Evans, M.D., Barnes and her colleagues interviewed 6,102 participants. Sixty-two percent of participants were African Americans and 62 percent were women. The mean age was almost 74 years and slightly less than half were married.

Staying connected with family is associated with less cognitive decline.

At the beginning of the study, participants' social networks and social engagement were assessed. Social networks refer to the quality of personal relationships and the size of social networks and social engagement refers to participation in meaningful or productive activities.

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Barnes Finds Success on the Hard Road to Science

Many roads lead to a research career. For Lisa L. Barnes, cognitive neuropsychologist at the Rush Alzheimer's Disease Center in Chicago, the first step on the journey was inexpressibly tragic: When she was just four years old, Barnes' biological father was murdered. The little girl didn't understand why the doctors couldn't save him. And so, from an early age, she decided to help others by becoming a physician.

Barnes was always very focused on education, strongly influenced by her mother who worked in grants management at the University of Chicago. She attended college preparatory classes at the University of Chicago from the third grade until her high school graduation. During her sophomore year in high school, Barnes took pre-med courses and

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worked in a pediatrics ward of a hospital. But when the children experienced bad outcomes, she found herself upset and crying in the bathroom. She gave the matter some thought and refocused her sights on neuropsychology.

After receiving a B.A. in psychology at Clark Atlanta University in Atlanta, GA, she spent 6 years at University of Michigan (U-M) working on her master's and Ph.D. in biopsychology. Barnes attended U-M on a full scholarship from the National Institutes of Health (NIH) in a program called Minority Access to Research Careers.

Lisa Barnes, Ph.D.

"When I was in grad school, I was so focused on my dissertation. I thought that what I was studying at that point defined me as a scientist. But it is very different from what I do now. Life is very dynamic," Barnes declared.

At U-M, Barnes pursued her love of teaching and won the 1995 Outstanding Teaching Assistant Award at the Rackham School of Graduate Studies. But she felt unable to do research and teaching equally well so she chose research.

Mentors helped her face such tough decisions at every stage of her career. At Clark Atlanta University, her mentor was psychologist Margaret L. Weber-Levine, Ph.D., who advised Barnes on what she needed to do to get accepted to a top rated school and how to be concise in her writing.

"Having a mentor helped a lot. You can't survive without your mentors guiding you and giving you advice when you need it," she said, noting that her grad school mentors were Charles M. Butter, Ph.D., and Patricia Reuter-Lorenz, Ph.D.

For her post-doc at the University of California, Davis, Barnes focused on clinical neuropsychology and the brain mechanisms in stroke patients. For 3 years, she administered computer and reaction time tests to learn how memory and attention overlap. While at UC Davis, Barnes was on a training grant sponsored by NIH's National Institute of Mental Health.

She returned to Chicago in her first job at the Rush Alzheimer's Disease Center, one of 29 Alzheimer's disease research centers across the country funded by the National Institute on Aging. For the past 6 years, she has conducted risk factor research and tried to understand the psychological and biological factors that cause Alzheimer's disease (AD). She is particularly interested in the biological and environmental factors that cause cognitive decline that can turn into AD and in reducing or eliminating racial disparities in health, particularly in AD.

In August 2004, Barnes received a $2.5 million R01 grant from the National Institute on Aging. With the grant, she will conduct a 5-year longitudinal study of 300 African Americans' memory and thinking abilities.

"We know that African Americans tend to do less well on traditional cognitive performance tests but we don't know why. Rather than compare Blacks to Whites, I thought it would be more informative to compare Blacks to Blacks," Barnes said.

Barnes has enrolled 150 participants via presentations at churches, senior centers, and, even tennis courts. "I went to a tennis court where a lot of African American seniors played and asked them if they'd be interested in hearing about my project and they said yes. I brought lunch and afterwards 20 people signed up. We're also getting referrals," Barnes said.

The project researchers conduct tests for memory and other thinking skills and collect a sample of blood to test for the Apolipoprotein E gene that increases an individual's susceptibility for developing AD. Barnes and her staff test people one at a time in their homes. She sends out a research assistant and then a nurse. With the results in hand, Barnes will visit and talk to participants. This frequent follow-up will help with the retention of participants, Barnes predicts. The community knows the project as the MARS Project – Minority Aging Research Studies. At NIH, it's called the Risk Factors for Cognitive Decline in Older African Americans.

It's rare to get an RO1 grant this early in a research career, Barnes admits. "So many people tried to discourage me from going for an R01 and said I should apply for a K award or do a pilot study. But I knew ultimately that my project was a good idea."

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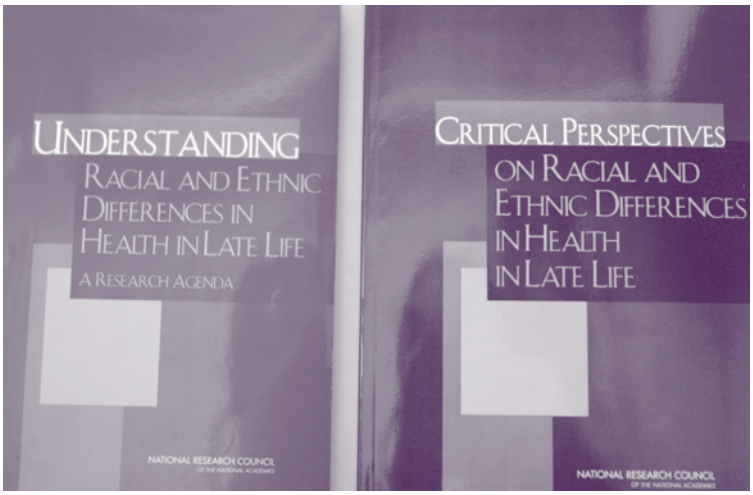
NRC Report On Racial and Ethnic Disparities Contain Recommendations for NIA Research



Understanding Racial and Ethnic Differences in Health in Late Life: A Research Agenda, a new report by the National Research Council (NRC), will help guide the Behavioral and Social Research Program at the National Institute on Aging (NIA).

Recognizing the trend towards increasing diversity of older populations, the NIA asked the NRC, part of the National Academy of Sciences, to assemble leading researchers to summarize current research, identify future directions for research, and make recommendations for further work on eliminating racial and ethnic health disparities in later life. Three main themes underlie the NRC's 18 recommendations:

- The roots of health differences have to be examined longitudinally and take into account socioeconomic status, behavioral risk factors, prejudice, and discrimination.
- All factors must be investigated in terms of their links to stress and biopsychosocial mechanisms that lead to impaired health.
- Interventions to reduce health differences should be evaluated along with the role of health care quality in racial and ethnic differences.

Reports by contributing researchers were published in the companion volume, *"Critical Perspectives on Racial and Ethnic Differences in Health in Late Life"* and may be viewed at http://books.nap.edu/catalog/11086.html. The volume containing the research recommendations may be viewed online at http://www.nap.edu/books/0309092477/html/. ❖

Hard Road to Science (continued from page 2)

It took Barnes three rounds to get the grant. In the first round, she spent 2 months reading the literature and crafting her specific aims so that she didn't bite off too much but still made a contribution to the science. The first time the grant was reviewed, it didn't get scored. But Barnes didn't flinch because her Rush colleagues told her that she shouldn't expect to be funded the first time.

Barnes addressed every point of the reviewers' comments and resubmitted the grant as soon as possible. The second time, Barnes' grant was scored but wasn't in the fundable range.

"I didn't internalize the rejection so it didn't bother me too much," Barnes said. "The group I work with has a great record of getting grants and their grantsmanship gets passed on to people like me. They gave me valuable tips and advice on what the reviewers would be looking for."

A grant can only be submitted three times so Barnes revised it once more and, this time, received a superb score. It was 4 or 5 months before she was officially notified about the award so she spent that time planning and figuring out who she was going to hire.

In addition to her Rush colleagues, Barnes credits the NIA Summer Institute on Aging Research with her success. "It was invaluable. I had insiders' tips on how to do things. I still network with people that I met there. I have encouraged several people to apply for the Summer Institute." ❖

"What Mother Never Told You about Getting Funded"

The key to winning grants from the National Institutes of Health is to write exciting abstracts and aims, according to David Finkelstein, Ph.D., research director for metabolic regulation research at the National Institute on Aging's Biology of Aging Program. He made his remarks at the 2004 Technical Assistance Workshop on Aging Research for Emerging Investigators and Students.

David Finkelstein, Ph.D.

"If you don't engage the reviewer and sell your idea, your grant won't be funded," Finkelstein said definitively. "Conversely, virtually all applications that really excite the reviewers are likely to be funded."

NIH receives more than 50,000 grant applications a year and the vast majority of the applications are good, he said. Each grant is assigned to an institute and to a study section. Each grant reviewer has the difficult task of reviewing 80 applications in just 2 weeks. For this, they receive the princely sum of $200 a day for each day that the review group meets, Finkelstein said. The average reviewer is expected to critically review 8 to 10 applications and scan all others. They triage while they scan the applications: 'good,' 'bad,' 'don't care' by quickly reading the abstract and the specific aims. The reviewer ranks and orders the applications realizing that s/he can only put one or two applications on the top. If your application is on the top, the critique will be good. If it is on the bottom, the reviewers will usually explain why it is at the bottom. If the reviewers aren't excited by your application, your application is likely to be "dead on arrival."

To improve the odds of getting a good score from the initial review group, write your abstracts and aims for a reviewer who will not necessarily be an expert in your field or familiar with your research. If you're smart, you will cite an article of one of the researchers sitting on the review committee because they have egos too, he said.

The reviewer knows that s/he will affect your career and doesn't want to kick you. In evaluating how to revise your application, it is best to ignore gratuitous positive statements in the summary statement. The most difficult review to respond to is when they say a few nice things but don't provide much feedback. Remember: If they liked the grant, they would've given it a good score.

If you have an advocate on the review committee, s/he can ask for the application to be discussed, even if the other reviewers have considered streamlining the application. In this case, the summary statement will be scored and will contain a summary of the discussion. Summary statements will not contain a comprehensive listing of the application's faults so responding to all the points in a summary statement is no guarantee that your application will be funded the next time. You want to find out what they really thought and whether they are giving you good clues. You can usually request and receive feedback from the NIA program people shortly after the review has occurred.

Do trial reviews with a trusted colleague who is not familiar with your research and with your significant other: if these people are not excited by your abstract and aims, then your reviewers will not be excited either.

"It is important to maintain your perspective and equilibrium because you will get kicked a lot," Finkelstein told attendees. "Remember that your grant application is not a reflection of your personal worth." ❖

Espino Shares the Eight "Ps" of Constructing a Research Career

If David V. Espino, M.D., had done better in taxidermy class, he might've become a bird expert rather than a geriatrician.

"I couldn't get the bird's eyes set right so I got out of birds and got into research," Espino told 30 participants of the National Institute on Aging's (NIA) 2004 Technical Assistance Workshop on Aging Research for Emerging Investigators and Students. Espino is professor and vice chairman of community geriatrics at the Department of Family and Community Medicine, University of Texas Health Science Center at San Antonio.

David V. Espino, M.D.

After medical school in Galveston, TX, Espino expected to become a family physician in a small rural town, he said in his talk, *Taking the Next Step — Strategies for a Successful Career in Aging Research.*

"I began to see people doing things that didn't make sense so I started doing my own research," he said. Eventually, Espino went to the Mt. Sinai School of Medicine in New York City for more training. "That was a very painful time. I was fresh out of residency and I thought I knew everything. My mentors sat me down and said, 'Do it this way or you're not going to be here.'"

What is the lesson for researchers? "If you're not crying in the corner from time to time, you're not being challenged enough," said Espino, who shared other lessons from his long and successful career:

Perception

- ❑ Decide where you want to be in 3 to 5 years.
- ❑ Set benchmarks.
- ❑ Decide what you do best and worst.
- ❑ Decide what turns you on.
- ❑ Decide who will give you honest feedback.
- ❑ Decide who will tell you that you're doing great or a lousy job.
- ❑ Decide what kind of researcher you are: a bench researcher, a bedside researcher, or a populations researcher.

Preparation

❑ Keep learning! "I can't over - emphasize this. Some people do their post-grad and then their post, post-grad work and feel like they're ready to stop learning," he said.

❑ Listen to voices contrary to yours.

❑ Establish routines and systems. "Research is the last thing you'll do because there are always other things to do. One day a week, turn off the beeper and, without interruptions, do the work."

- ❑ Take one hop at a time. For instance, you must have preliminary work if you want to write a successful R01.
- ❑ Spend time writing because it matters.

Persistence

- ❑ Simple ideas are good. "Before class, a teacher of mine would refer to a piece of paper before class. It said 'spleen left, liver right,'" Expino said.
- ❑ If you think you are right, don't give up.

Perseverance

- ❑ Failure breeds success if you analyze your mistakes and correct your errors.
- ❑ Do not make the same mistakes over and over again. Audit your actions.
- ❑ Determine your hardiness level. Be prepared to encounter a significant amount of rejection in this business.
- ❑ Don't be afraid to confront your failures. Judith A. Salerno, M.D., NIA deputy director, described how she contacted a journal editor when her submission was rejected. In response, she received additional feedback that paved the way for future successes.
- ❑ Reviewers spend more time giving feedback to grants that fail than successful grants. The reviewer might say that you've got a good idea and discuss what you need to do to get it funded. No one gets used to failing.

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Protégé

- ❑ Develop at least two mentor relationships. You need a context mentor who knows more than you about your area of interest and can give you technical advice. You also need a personal mentor to keep you steady and on track. Go into their office when you need to celebrate or cry. Nurture those relationships.
- ❑ Get the mentor's attention because we are very, very busy. Think of your issues in terms of how it will move the mentor's shop forward. Expand yourself through programs, and conferences. Mentors can introduce you to people.
- ❑ If your mentors are telling you two different things, get them to talk to each other.
- ❑ When you must say good-bye to a mentor, it is just like a break up: "It's not you, it's me."

Peers

- ❑ Build relationships with your peers. This is a collaborative career. You need to work with each other's ideas. Everything you do communicates something to your peers. It can be rich and fulfilling.
- ❑ Stay connected and grounded. Learn from your rivals. Don't lose sight of the goal of advancing the common good.

Passion

- ❑ What is rewarding gets done.
- ❑ Stay in love with your research and nurture that relationship. This is a long-term relationship you're developing.
- ❑ Develop your critical mass – peers and mentors who can move your research forward.

Party!

- ❑ You're not going to get rich doing research so enjoy the time you have and celebrate your victories.
- ❑ Eat well and celebrate your own (non-research) life events.

"Remember that you're special and you have the opportunity to make a difference," Espino told the participants. "Research is collaborative and relational and extremely hard. You will be discovering something new that you have ownership of. In the end, the result is what really matters," he said. ❖

Greater Social Resources (continued from page 1)

In addition, participants were administered four cognitive tests to assess perceptual speed and different types of memory.

Participants were interviewed at 3-year intervals for 5.3 years on average. Researchers also gathered information on education, marital status, and annual income.

Participants with the largest social networks – 16 social ties – experienced 39 percent less cognitive decline than participants with only one social tie. Those with the highest level of social engagement reduced cognitive decline by 91 percent compared to those with the lowest levels of social engagement. On an eight-point scale measuring participation in social activities, with higher scores indicating more frequent activity, a person who scored an eight on the scale corresponded with a 91 percent reduction in cognitive decline, compared to someone who scored a one on the scale.

In a secondary analysis of the data, Barnes found that the association of frequent social engagement

with reduced cognitive decline may be stronger in Whites than in African Americans. One possible reason is that the measures of social engagement may not be as culturally relevant to African Americans as they are to Whites.

The reason that social engagement and networks are associated with less cognitive decline is unclear. One possibility is that interacting with people and participating in social activities can be cognitively stimulating, and this may protect against cognitive decline. Another possibility is that these types of social resources may motivate older people to maintain better cognitive function when they fear that they are losing their memory or other thinking abilities, according to the study. It is also possible that fewer social resources may be an early sign of declining cognition. ❖

Remember! July 15 Deadline for Technical Assistance Workshop

On November 17-18, 2005, the National Institute on Aging will hold the Technical Assistance Workshop for Minority and Emerging Scientists and Students, a two-day interactive forum where minority and emerging scientists and students receive feedback from NIA staff on their current or planned research as well as general information about applying for NIA grants. The workshop is traditionally held in conjunction with the annual scientific meeting of the Gerontological Society of America. NIA encourages applications from members of groups under-represented in aging research and investigators committed to research careers related to minority aging issues. Applicants should be pre- or post-doctoral students or recent recipients of Ph.D., M.D., or related doctoral degrees; new to the NIH application process and/or embarking on an independent program of research; investigators with less than five years of research experience; and U.S. citizens, non-citizen nationals, or permanent residents.

Applications are due by July 15, 2005. For information and application forms, please contact Jamie Gulin at (301) 496-0765 or gulinj@nia.nih.gov. ❖

NIA Expands Outreach to Older Hispanic Americans

The NIA Office of Communication and Public Liaison (OCPL) has developed an impressive variety of health education materials for older Spanish-speaking adults, including 33 Age Page titles, an exercise guide, Alzheimer's disease fact sheets, and Spanish-language versions of *Alzheimer's Disease: Unraveling the Mystery* and *Talking with Your Doctor*.

The Office is conducting outreach at both the national and community level to publicize these free resources in Spanish-speaking communities. Activities include:

- Mailings and follow-up telephone calls to national Hispanic organizations, as well as local Hispanic health and community centers, area agencies on aging, libraries, hospitals, and primary care doctors in the main Hispanic markets
- Development of Spanish-language newsletter articles, announcements, flyers, and posters for notice boards
- Distribution of press announcements to Spanish media outlets in the U.S.
- Development of a Spanish-language publications ordering feature on the NIA Web site ❖

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LINKS: MINORITY RESEARCH & TRAINING
Work Group on Minority Aging
Office of the Director
National Institutes of Health
National Institute on Aging
Building 31, Room 5C35
Bethesda, MD 20892-2292
Phone: 301-496-0765

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